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Characteristics of target costing: theoretical and field study perspectives

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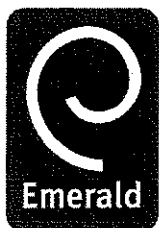
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Abstract

Purpose – Despite appearing in the literature over 10 years ago as a potentially exciting cost management technique, there is still limited agreement about the nature of target costing. The purpose of this study is to explore the characteristics of target costing, and to test whether these characteristics were adopted in three European companies that used target costing.

Design/methodology/approach – This paper draws on case study data, collected at three manufacturing companies (consumer electronics, machinery, and transportation equipment).

Findings – The paper identifies eight characteristics of target costing, based on the early Japanese case descriptions. These characteristics are related to the way a target is set and how progress towards that target is measured. The findings of the case studies confirm these characteristics. However, some differences were found regarding the interpretation of the strict rule that “the target cost cannot be exceeded at product launch”.

Research limitations/implications – The results indicate that future research on the adoption of target costing cannot be disconnected from its characteristics. Further studies might investigate whether degree of openness to suppliers, leadership position, time pressure and position in the supply chain can explain the noted differences in characteristics among companies.

Practical implications – The characteristics identified in this paper provide an aid to researchers and managers considering target costing. Detailed case descriptions provide best practices examples for other companies.

Originality/value – This study is the first empirical paper concerned with describing the typical characteristics of target costing. By exploring the characteristics, we hope to inspire others to further explore this interesting phenomenon.

Keywords Target costs, Costs

Paper type Research paper



Introduction

Target costing became popular in the English language literature in the 1990s (Cooper, 1995; Kato, 1993; Monden and Hamada, 1991). Target costing is a cost management

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technique used during new product development (NPD): a cost target is set for a new product and the NPD team is motivated to attain that target before product launch. Target costing has been described in the literature as a promising practice. For instance, Cooper (1995) reports on the "feed forward" benefit, because target costing allows companies to prevent costs during design rather than reducing costs after the fact. Target costing ensures profitability in the short and long run, because products that show up as low-margin or unprofitable during NPD can be quickly dropped (Cooper and Chew, 1996). Target costing focuses the design team on the ultimate customers and their willingness to pay for the product features (Cooper and Chew, 1996). The use of target costing also forces management to decide on the features, quality and time issues early in the process and to balance cost and features against customers' willingness to pay for all these (Ansari and Bell, 1997).

What has happened in reality with this promising practice? Tani *et al.* (1994) conducted an extensive survey on target costing in Japan and reported that 61 per cent of the manufacturing firms investigated used target costing. Dekker and Smidt (2003) conducted a similar survey in The Netherlands and found an adoption rate of 59 per cent. However, respondents provided a wide range of names and descriptions for the practices they employed, pointing to the many differences between their systems and the definition of target costing as provided by the researchers. This led Dekker and Smidt (2003) to call for more empirical research on the characteristics of target costing. Other adoption studies are available in a non-Japanese context, but they focus mainly on a broad set of management accounting practices and do not focus on specific characteristics (Chenhall and Langfield-Smith, 1998; Guilding *et al.*, 2000; Joshi, 2001; Wijewardena and De Zoysa, 1999). To fill this gap, this paper examines the characteristics of target costing and provides some empirical evidence on their significance.

The purpose of this paper is to explore the characteristics of target costing, based on published case study research. The second purpose is to investigate whether these characteristics are adopted in practice. We investigated three European companies that had adopted target costing.

The paper is organized as follows. First, the definition of target costing and the development of the characteristics are presented. The following section addresses the methodology of case studies. Then, we describe the studied companies and their target costing systems. The paper ends with a discussion, conclusion, and limitations.

Definitions of target costing

Target costing is not a costing system like full costing, direct costing or activity-based costing (ABC). Target costing is in fact a mistranslation of what is called *Genka Kikaku* in Japanese. In early publications, other names were used for target costing systems such as "cost planning" and "cost projection systems" (Kato, 1993). Dekker and Smidt (2003) found other names in use, such as "basic net price" "manufacturing cost reduction" "pre-calculation" and "direct cost feasibility study". Michaels and Wood (1989) refer to design-to-cost as the precursor of target costing, which is an old principle with its roots in the US Department of Defence. Restrictive budgets led the department of defence to define a maximum amount of costs over the entire life cycle of a weapon system undergoing development. In the few descriptive research studies that are available on design-to-cost, it appears to resemble strongly the target costing method. However, according to Yoshikawa *et al.* (1993), design-to-cost focuses on the internal

capabilities of an organization, since the target cost is set at a level that can be achieved with appropriate design engineering, while target costing has a more external, market-based focus. We will use the term target costing in this study, while acknowledging that it has much in common with design-to-cost.

There are two key processes in target costing: the determination of the target cost and the achievement of it. Although many different definitions of target costing exist in the literature, some authors use a narrow definition limiting target costing to one of the two processes – determination or achievement – while others prefer to use a broad definition, referring to target costing as both the determination and achievement management process. Additionally, other researchers focus on the purpose of target costing, i.e. to reduce the downstream costs of a future product.

In this paper, we define target costing in the following comprehensive way:

Target costing is the process of determining the target cost for products early in the new product development process (NPD) and of supporting the attainment of this target cost during this NPD process, by providing target costing information to motivate the NPD team to realize downstream cost management of new products in order to ensure product profitability when launched.

Note that our definition is a broad one including both the determination and the attainment processes following Makido (1989) and Yoshikawa *et al.* (1993).

Theorizing on the characteristics of target costing

No existing article or paper has been found that theorizes about the “necessary” characteristics of target costing. In the academic as well as the practitioner literature, different characteristics have been attributed to target costing – see Brausch (1994), Cooper (1995), Cooper and Slagmulder (1997), Fisher (1995), Kato (1993), Kato *et al.* (1995), Monden and Hamada (1991), Morgan (1993), Sakurai (1989) and Tanaka (1993). Based on what we know from prior case study research in Japan, we deduce a set of eight characteristics of target costing, outlined next.

The target sales price is set during product planning, in a market-oriented way

Establishing the target sales price is the starting point in the target costing process. Cooper and Slagmulder (1997) found that the target sales price is set realistically in companies using target costing, and that the process of setting the target price is conducted very thoroughly. Kato (1993) explains that the price level of existing products or the price level of competitors’ offerings typically provides an initial starting point. A high sales price is justified only if the perceived value for the customer is high. To illustrate this principle, we quote from Cooper’s Topcon (ophthalmic instruments) case:

Topcon would price its new products near that of competitors’ products. However, if management believed that the Topcon product had greater functionality than competitive products, then the price of the Topcon would be higher. If the functionality was perceived to be lower, then the price would be correspondingly lower (Cooper, 1994d, p. 6).

Apart from the perceived value to consumers and the price level of competitor products, Kato (1993) mentions other factors to consider when setting the sales price, such as the product concept, the characteristics of the anticipated consumers, the product life cycle, the expected sales quantity and competitors’ strategies. At Olympus (camera producer), Cooper (1994a) found that the price level of other consumer

products was also considered important in deciding on the target sales price of a new camera, since consumer research had shown that many consumers were trying to choose between a compact disc player and a compact camera.

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target costing

The target profit margin is determined during product planning, based on the strategic profit plan

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The second characteristic of a target costing system is the early establishment of the target profit margin during the product planning of the future product. Kato (1993) and Monden and Hamada (1991) explain that the total target profit for a future product can be derived from the medium-term profit plans, reflecting management and business strategies over a period of 3-5 years. These target profits can be decomposed into target profits for each product over its expected life cycle. With an estimation of future sales volumes, the target profit for a future product can be converted to a target profit margin per unit. Kato (1993) admits that it is quite a difficult task to imagine a future product portfolio in today's environment, but adds that without doing this, it is impossible to decompose the total target profit into targets for each product. Furthermore, Kato *et al.* (1995) found that the profit allocation to the various products is an arduous undertaking that consumes many hours of management discussion before top management announces the final allocations. Cooper (1994b) gives an illustration of this critical corporate management activity at the Nissan headquarters in Japan, where the target margin for a future car is determined by carefully considering information on the customer, the firm's anticipated product mix and its long-term profit objective.

The target cost is set before NPD really starts based on either the subtraction or the addition method

The third and well-known characteristic of target costing is that the target cost is set early in the NPD process, before design and development really start. The decision on the appropriate level of the target cost for the new product requires some cost considerations. First, the ongoing cost (also-called the drifting cost) is calculated for a future product. It is defined as the best estimate of the future product's cost (Kato *et al.*, 1995). When NPD starts, this best estimate is based on the actual cost of the current product, considering cost-decreasing and cost-increasing factors. Ansari and Bell (1997) explain that this ongoing cost is also-called the drifting cost, since it needs to "drift toward the target cost through successive design iterations during NPD". Second, the as-if cost is calculated. Kato (1993) explains that various ideas for cost reduction might have emerged during NPD or during the manufacturing of current products, but could not yet be applied to the current products. Hence, the as-if cost represents the cost of making the future product as if the company implemented all the available cost-reduction ideas. The as-if cost in fact represents a real cost reduction; however, Kato (1993) found that it was unlikely that the Japanese companies he studied would be able to realize the medium-term profit target, given the market-determined sales price. Third, the allowable cost is calculated as the difference between the target sales price and the target profit margin. The allowable cost represents the cost at which the product must be manufactured in order to gain the target profit margin, when sold at the target sales price. However, Sakurai (1989) clarifies that this allowable cost

might not be achievable in the short run and in fact forms the most stringent long-term cost objective.

Finally, the target cost is set somewhere between the as-if cost and the allowable cost, either top-down or bottom-up. In the top-down method, the target cost is set at the level of the allowable cost, i.e. at the difference between the target sales price and the target profit margin. This method is most commonly described in existing case studies and is also called the subtraction or deductive method. The target cost is more-or-less imposed on the NPD team. This contrasts with what is called the bottom-up method, where the target cost starts within the NPD department itself. Kato (1993) explains that for each subassembly or component, the cost is estimated, based on the actual cost of current parts. A cost reduction on each part of the new product is taken into account to get the target for each component of the new product. The total target cost is then obtained by adding up all target costs of the individual parts or subassemblies. For Kato (1993), it is clear that the top-down method is superior to the bottom-up method. He argues that although the bottom-up is based on the feasibility test of the proposed value of engineering improvements, it is difficult to provide a logical connection with the profit and business plans. Sakurai (1989), on the other hand, argues that a combination of the top-down and bottom-up methods leads to the best results. His reasoning is that top management should guard target profits, but at the same time the cooperation of employees is needed to make target costing work.

The target cost is subdivided into target costs for functions, subassemblies, cost items, designers or suppliers

For target costing to work, the target cost for the future product needs to be decomposed in order to have specific targets for designers internally and subcontractors externally. An example of this characteristic is provided in the Isuzu (car manufacturer) case. We quote:

As part of the planning stage, the target cost for an entire vehicle in the concept proposal stage was distributed among the vehicle's 8,000-10,000 components at the major function or group component levels. Isuzu designers identified approximately 30 major functions per vehicle, including the engine, transmission, cooling system, air conditioning system, and audio system. Group components were the major subassemblies purchased from the firm's suppliers and subcontractors. There were only about 100 such components, yet they amounted to as much as 70-80 percent of the manufacturing cost (Cooper and Yoshikawa, 1994, p. 5).

Different allocation methods are described, of which the function-oriented and the component allocation method are the best known. In the function-oriented method, the target cost is first allocated to the different functions of the future product and then to components. Yoshikawa *et al.* (1993) explain that the value of a specific function as perceived by the customer was the main criterion for allocating the target cost to functions in the companies they studied. Yoshikawa *et al.* (1993) add that setting target costs for functions based solely on the customers' viewpoint may overlook certain factors such as technical considerations and meeting safety and other regulations. They found that although the customers' evaluation is dominant, it is often modified to take into account the manufacturer's evaluation before finalizing the target cost for each functional area. The second well known allocation method is the component method. Here, the target cost is allocated to subassemblies, components and parts.

Yoshikawa *et al.* (1993) state that for subdivision into components, the proportion of the current cost of the same part of comparable existing products is frequently taken into account. Tanaka (1989) clarifies that the component method is usually applied to new products that are similar in design to previously manufactured products, since it is based on historical cost information. For complex, innovative and large-scale products, the functional allocation method is more suitable, since it allows designers maximum freedom to apply their creative talents to design new or revised products within the target cost guideline. Furthermore, Kato *et al.* (1995) argue that allocating target costs to product characteristics directly satisfies customer requirements, although they found that Toyota and Matsushita, two large Japanese companies, used only the component method. Conversely, based on survey research, Tanaka (1989), Tani *et al.* (1994) and Yoshikawa *et al.* (1993) found that large Japanese companies using target costing frequently assign target costs according to the degree of importance of the functional areas, regardless of the historical cost of the components.

Other methods, such as assignment of targets to cost items (materials, labour, overhead) and to designers, are illustrated by Yoshikawa *et al.* (1993). Monden and Hamada (1991) illustrate assignment to *cost items* such as engines, transmission systems, chassis, etc. and then into cost items such as material cost, purchased part cost and direct labour cost. Ansari and Bell (1997) argue that in most organizations, departments are responsible for the cost of subassemblies, teams are responsible for the costs of components, and designers are responsible for the costs of individual parts. However, Yoshikawa *et al.* (1993) warn that the more the target cost is subdivided, the greater the restrictions that are placed on designers and the less likely new ideas are to emerge.

Target costing requires cross-functional co-operation

The co-operation of many departments is needed in the execution of target costing (Monden and Hamada, 1991). A company that uses target costing has to stimulate the multidisciplinary cross-fertilization of ideas, resulting from different individuals working together. Cooper and Slagmulder (1997) argue that multidisciplinary co-operation is essential, since successful cost reduction must balance all NPD objectives such as cost, quality and functionality issues. Yoshikawa *et al.* (1993) report that target costing requires a participative effort involving representatives from production, engineering, design, marketing, accounting and sales. A company has to use the talents, innovativeness and simple awareness of every member of the organization in order to spot opportunities for cost reduction (Carr and Ng, 1995). Böer and Ettlie (1999) suggest that people are too prone to believe that target costing is straightforward: you start with the selling price of the product minus the profits you desire to determine the money you can spend to produce it. However, arriving at the right numbers requires intense co-operation among all groups involved in product development. Furthermore, Ellram (2000) noticed that target costing not only provides a common language among the team members, but also creates a common goal. It is the commitment of the group to the target cost that creates fundamental pressure for cost reduction.

Moreover, key suppliers are involved from the early stages of the target costing process. This early involvement allows participation in the design process by providing new technology or ideas to ensure that both the supplier and buyer will achieve the target cost (Ellram, 2000).

Detailed cost information is provided to support cost reduction

To see the impact of design decisions on cost and to monitor progress towards the cost reduction objective, design engineers need to estimate the cost of the future product during design and development. Kato (1993) argues that designers require detailed cost information at all times and not only at the so-called milestones in the NPD process. Target costing requires managers and engineers to estimate constantly the production cost of a product as it moves through the NPD process, and they must draw on information from all parts of the organization.

One famous example of cost information, mainly used by Japanese companies during target costing, is the cost table. Yoshikawa *et al.* (1990) explain that cost tables are large computerized databases, which represent an easily accessible source of information about the effect on product cost of using different production resources (materials), manufacturing methods, functions or product designs. The cost drivers used in the cost tables include the equipment employed, the type of material used and the main design variable that affects production activities and their cost. Yoshikawa *et al.* (1990) found different types of cost Table in Japanese companies, according to the area in which they are used: approximate cost tables were used for designing new products, detailed cost tables were used for purchasing activities and for kaizen costing programs during manufacturing. Originally, cost tables were developed for purchasing decisions, since it was crucial that purchasing managers had up-to-date information on the expected costs of subcontracted materials and components. However, the major use of cost tables in target costing now is to estimate future costs at various stages in the NPD process. Close co-operation with suppliers also requires detailed information on the cost elements of the supplier. An open-book policy provides a complete breakdown of the costs of material, packaging and shipping costs, overheads and profit, facilitating a collaborative approach to innovation throughout the entire supply chain (Carr and Ng, 1995).

The cost level of the future product (drifting cost) is compared with its target cost at different points during NPD

The seventh characteristic of target costing involves the comparison of the drifting cost of the future product with its target cost at different points during NPD. Kato *et al.* (1995) found that continuous updating of projected production costs for the products under development was stressed. Each business followed a formal sequential process in which costs were estimated at certain critical phases in the process. Furthermore, Fisher (1995) found that the target cost calculation sheet, with the drifting cost and the target cost for each component, was formally completed at a minimum of three different points during NPD at Matsushita (the largest electronics manufacturer in Japan). These milestones were set at the product planning stage, before ordering the moulds and immediately before full-scale production started. Similarly, Kato *et al.* (1995) found companies using a standard format for summarizing cost data on a product moving through development. Team members could refer to this document at any time to see the latest estimates of the cost level. Cooper and Slagmulder (1997) found that the Chief Engineer and his/her superiors continuously monitor the design engineers' progress toward achieving the cost reduction objective. This monitoring ensures that corrective actions are taken as early as possible to achieve the target cost.

Establishing the general rule that "the target cost can never be exceeded"

The last identified characteristic of target costing involves the policy of not exceeding the target cost. Cooper (1995) stresses that the use of a target costing process in Japan is characterized by the intensity with which the rule "the target cost can never be exceeded" is applied. He calls it the cardinal rule. Kato (1993) states that the Western sense of *target cost* does not necessarily induce commitment. Inflation and labour cost increases due to union negotiations are automatically added to a target cost in the Western sense. However, in the Japanese companies he visited, agreed target costs are final and they are not expected to change.

To Cooper and Slagmulder (1997), the rule that the target cost can never be increased has three consequences. First, whenever cost increases somewhere in the product during NPD, it has to be reduced elsewhere by an equivalent amount. For instance, in the Komatsu (construction equipment) case, Cooper (1994c) describes how a more expensive design of the engine, transmission and torque converter was justified by making the mounting bracket cheaper to produce. Second, launching a product with a cost above the target is not allowed; only profitable products are launched. Third, the transition to manufacturing is managed carefully to ensure that the target cost is indeed achieved.

These eight characteristics of target costing identified from the literature formed a theoretical starting point for the case studies conducted in this study. The research methodology employed is outlined next.

Methodology

Case study research

The main research question here is: "Are the target costing characteristics, deducted from Japanese case study research, also deployed by European target costing adopters?" This study investigates the question with qualitative interview data obtained from individuals directly involved with the target costing process. The focus on the characteristics in this paper justifies a qualitative approach for several reasons. First, as mentioned before, the concept of target costing has not been clearly defined and means different things to different people (Dekker and Smidt, 2003). Case study research provides a unique approach for studying practices in real-life context, even when these practices are ill-defined or ill-structured (Kaplan, 1986; Birnberg *et al.*, 1990). Second, Roethlisberger (1977) argues that for each stage of knowledge the appropriate research methods should be used. The current stage of knowledge on target costing can be described as the "clinical knowledge stage" where researchers are trying to understand and capture the many dimensions of the phenomenon. Case study research is considered the most appropriated research method in this clinical knowledge stage (Kaplan, 1986). Third, research on Japanese companies has been mainly performed through case studies (Cooper and Slagmulder, 1997; Kato, 1993). Similarly, studying target costing in a European business could benefit from direct and in-depth contact with practitioners. Finally, field research has a comparative advantage over the survey method when the topic of inquiry is so complex that the phenomenon of interest is not readily distinguishable from its context.

Selecting the case study companies

To answer the research question it was important to investigate companies that were familiar with the target costing concept and that had several years of experience with this

technique. From the survey by Tani *et al.* (1994), we know that target costing was most extensively used in companies belonging to the sectors of transportation equipment (adoption rate in Japan of 100 per cent), electronics (88.5 per cent adoption rate), machinery (83 per cent adoption rate) and non-ferrous/metal (53 per cent adoption rate). We used the database of the 30,000 largest companies in Belgium and contacted the ten largest companies within these four sectors. Five companies were willing to participate, but after an initial interview, it was clear that two of them were not using a target costing system. We decided to omit these two firms from further in-depth interviews.

Data collection

Qualitative data were gathered from interviews with key individuals who were directly involved in target costing during NPD. Data collection included interviewing at least three key members of the target costing process, site visits and reviews of company documents (e.g. company brochures, company web site documents and in-house reports). In the first round of interviews, we conducted interviews of about 120 minutes with each company's head of design, head of development, purchase manager or cost accountant. To avoid responses that could be artefacts of the interview process itself, the researchers deliberately did not ask leading questions regarding the identified characteristics of the target costing process during the in-depth interviews. At this first stage, we preferred to gather data more freely and record respondents' natural and undirected comments on their system in practice. The researchers asked the following open questions:

- Can you describe the target costing process at your company?
- How do you define a target cost during NPD (follow-up: When? Subassemblies, parts, suppliers?)
- What kind of information is needed to support the target costing process?
- Who is involved in the target costing process at your company?
- When do you decide on product launch? (Follow-up question: What happens if the drifting cost exceeds target cost?)

These interviews were transcribed verbatim and analysed. Afterwards, a second round of data collection was undertaken to double-check the data. The case analysis was sent to one or two of the interviewees beforehand and an interview of 60 minutes was undertaken. The purpose was to double-check the analysis made, as well as to ask some additional questions for clarification. Again the interviews were transcribed verbatim and the analysis was elaborated with the new information. The data sources used are summarized in Table I.

Results

Case A

Description of case A. Case A is a global leader in the manufacture of consumer and industrial electronics. Case A boasts an unparalleled combination of mechanical, electronic, and chemical expertise as well as robust R&D capabilities. The company continues to leverage these strengths to create new, innovative products in flexible, highly efficient production systems. It is a dynamic, global company with a well-established presence in five major regions: Japan, China, Southeast Asia, Europe, and North America:

	Case A	Case B	Case C	Characteristics of target costing
<i>First round</i>				
Interview sessions of 120 minutes with	Supervisor design Supervisor manufacturing planning purchase manager	Purchase manager Head of engineering Product cost supervisor	Cost accountant Purchase manager	
<i>Second round</i>				
Interview sessions (60 minutes) with	Supervisor design Supervisor manufacturing planning Cost report per product	Head of accounting, finance and controlling Supervisor product cost Monthly report of drifting cost vs target cost per product	Head of industrial development Cost report per product (standard + ABC costing)	
Internal documents	Web site company brochure	Web site company brochure	Web site company brochure	
Public information				

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Table I.

Data sources used in the field study research

CASE A is a global leader in its field in its commitment to energy conservation, environmental consciousness and safety, adhering to and often pre-empting international and local legislation in these areas (Company Brochure).

The division we approached is the sales and manufacturing headquarters, responsible for Europe, some parts of Africa and the Middle East. It began in 1972. Initially, the company operated solely as an assembly and distribution centre for its parent company in Japan. However, it is now an independent production unit, adapting progressively to the ever-widening needs of its European and African customers. Competition is intense, since a lot of competitors bring "me-too" products onto the market. To keep growing, case A needs to develop new products that are less expensive in terms of electricity usage for the final customer. Also, its development times are considered short (three months to one year maximum) and are strictly enforced. For certain market segments, case A is clearly the market leader. In those segments, it has limited control over the sales price. For other segments, mainly for products for household appliances, case A is not always the market leader and faces fierce competition. In these segments, it is their aim to grow by introducing new products. Here, target costing is used to full advantage.

Target costing process at case A. In case A, target costing permeates the entire company. The design project leader was astonished to learn that there were companies that did not use target costing:

I cannot imagine that we were designing and developing a new product without any target cost. Bringing products to a highly competitive market without starting from what the customers are prepared to pay for, is really unimaginable to me ... If the product is not be profitable to the company, I don't see any reason why we would put effort in designing that product (Supervisor, Design Department).

At case A, the NPD process is organized in a very structured way. It begins with a market study by the Product Planning Department. This study entails appraising the preferences of today's customers and the expectations of the distributors. The market

study results in the identification of the preferred functionalities, the required quality levels and an expected selling price.

During the product development meeting (top management, product planning, design, manufacturing planning, sales), the planning of the future product mix is established. During these meetings, the preferred functionalities are evaluated in terms of technical feasibility and cost. All these discussions will result in a formal agreement (the so-called "ESK project contract"), including the agreed specifications, the expected volume, the expected selling price and the agreed target cost. Since, top management decides on the profit margin per product, the agreed target cost is established at the ESK project contract as the difference between the expected selling price and the profit margin. This agreed target cost is also-called the market target cost:

The ESK project contract is a formal agreement you could say between Sales and Manufacturing. Sales Europe places the order to design, develop and produce the new product in our Manufacturing Plant Europe. Manufacturing Plant Europe engages to design the new product and to start with mass production at a given deadline, most of the time six months to one year from now (Supervisor, Design Department).

However, case A also established an internal target cost called the "challenging target cost". This internal target cost is not based on market data, but is the lowest manufacturing cost within production plants of case A all over the world. It represents best practice and can be considered as an internal benchmark. This internal target cost is usually much lower than the target cost derived from the market, because case A also has manufacturing plants in China:

If we want to keep our production in Belgium, we need to design and develop new products that do not exceed this internal challenging target cost. Sales and Manufacturing are disconnected at CASE A ... Sales is looking to the different products all over the world. If they find a similar product in China, they will absolutely compare the China production cost with the Belgian production cost and ask why we are more expensive (Supervisor, Manufacturing Planning).

Therefore, case A considers the internal target cost as the real target to attain. After the project contract is signed, the advanced trial stage starts, in which designers investigate what kind of subassemblies and technologies are necessary to aim for the required functionalities. After a thorough examination, the Design Department creates a product concept. That product concept is then presented to the different departments involved at the specification design review meeting. Agreement is made on the product concept as well as on the internal target cost for the different components. Detailed design and development work is now performed and an early prototype is built. At the end of this stage there is a formal meeting, the master plan design meeting. Formal agreement of all departments on the detailed design is made and the prototyping and testing stage can start. After testing the prototype, which may result in minor (or major) changes, a final design review meeting is held, at which all the departments gather to give their approval to launch the product for pilot production. At that time, the design department delivers the project to manufacturing and they decide then on the release for mass production. A summary of the NPD process is shown in Figure 1.

It is clear that during the design process, several design meetings are held at case A. At each of these stages, progress is fully discussed: will the targets be achieved? If not, what kind of countermeasures will be taken, and in what time span will those

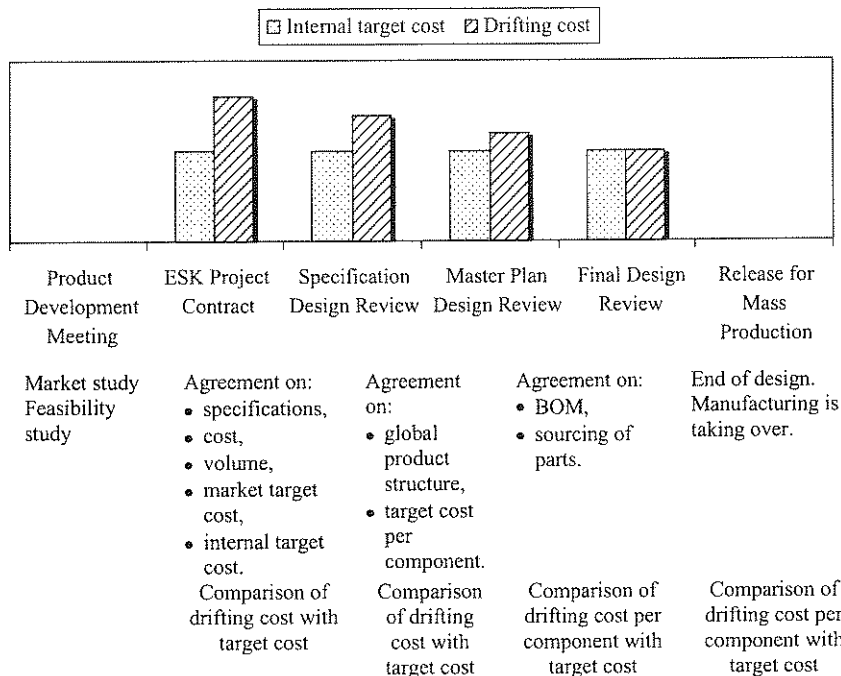


Figure 1.
NPD process and the
drifting cost at case A

measures take effect? At the end of each meeting, every department has to agree formally on moving on to the next stage. Keeping everybody up to date on the progress of the design project is the main goal of those meetings:

Our structured way of having frequent meetings and obtaining formal agreement by all departments involved, is considered as essential for the success of target costing. In fact, all decisions are made by consensus. In practice, each team member is really placing his/her signature. This means: I agree with the progress and I commit myself to the action plan to attain the target cost (Supervisor, Design Department).

For the interviewees, objectivity about the internal target cost was therefore perceived as a necessary condition for commitment to the internal target cost:

To aim for an internal target cost, when you don't know where this target cost is coming from, is really difficult for me. I need to know *why* the internal target cost is so challenging. Utopian internal target costs should be avoided. I am not willing to put effort into a new design, if we know beforehand that nobody in the world ever reached the area of that target cost. If short-distance runners of 100 meter aim to break the record of 9.75 with 1 second, well this sounds like a challenging target. But if you set the target for your short-runners to break the record with 25 seconds, this sounds like an unrealistic target and might no longer motivate your athletes. The same applies to my designers (Supervisor, Design Department).

At case A, the cost reductions efforts focus on the direct cost, i.e. material (parts), direct labour (for assembly process), direct machine time (for assembly process) and the die costs. Overhead is applied to all products as a percentage of direct material. There are

no actions undertaken to reduce overheads as in an activity-based management kind of setting:

The direct material cost, as defined in the bill-of-material, represents two thirds of the total cost of our products. The purpose of cost reduction during design is to reduce the cost of material (parts) and to make the assembly process simpler. For assembly, we face direct labour as well as machine costs Of course, when a product needs a specific tooling, like a die, the die cost is considered as a direct cost and is included in the drifting cost (Supervisor, Manufacturing Planning).

At each of the review meetings the drifting cost is presented and compared with the internal target cost. Additionally, design and manufacturing planning are having weekly meetings to monitor the progress on attaining the internal target cost. In the beginning of the NPD process (e.g. specification design meeting) the drifting cost is based on estimates from the design database, but, throughout the NPD process the estimates are replaced with "real" quotes from suppliers or "real" machine time estimates. The objective of the design team is to develop a new product that reaches the internal challenging target cost at the deadline of pilot production:

When the drifting cost is too high, compared to the internal target cost, cost reduction ideas are generated during the design meetings. For instance, a design change can be suggested or another supplier might replace a high cost part (Purchase Manager).

It is clear that different departments are involved in the target costing process at case A, such as design, quality, purchase, manufacturing planning, production and sales. In the cross-functional collaboration between the departments, the design department takes the lead and appoints the project leader. Sales are involved, because they monitor the deadline for delivery of the product to customers. The input of production is necessary, because products need to be produced with the existing machinery. If a new mould is necessary, this needs to be planned from early in the process. The quality control department is responsible for quality issues in terms of purchased parts and finished products as well as different countries' safety norms. The purchase department has accurate cost information on every single part. All departments provide cost information to the purchase department to keep its databases on the bills for materials up to date. Manufacturing planning keeps track of the drifting cost, estimating whether the internal target cost will be achieved or not.

Suppliers are not involved in the design review meetings. However, the purchase department maintains an important relationship with the suppliers. The company sets targets for the multiple components they need to buy from their suppliers. Suppliers are therefore forced to accept targets at which they should be able to deliver the components. The purchase department has a strategy of working mainly with a limited number of key suppliers who have established a mutually beneficial relationship with the company. In the past, key suppliers have made valuable suggestions for cost reduction. The company does, however, compare the prices of key suppliers with the prices of other suppliers. When non-key suppliers quote a substantially lower price, case A will deviate from its strategy and give the non-key supplier the order. Maintaining contact with non-key suppliers is necessary to keep pressure on the key suppliers. Suppliers, especially key suppliers, are also expected to give information about their cost structures. The reason why case A wants such detailed information is illustrated by the following example:

Consider a supplier that gives a quotation for a certain part. This quotation is not based on reality; in fact the supplier has given a very low price only to obtain the order. If purchasers have information about the cost structure of that supplier, they will see that maintaining such prices is not feasible. The supplier cannot earn a proper profit if it maintains its price and will ultimately go bankrupt, or after a certain time will raise the price. These situations are assiduously avoided. If the supplier does not want to give that kind of detailed information, the supplier will simply not be considered (Purchase Manager).

The cardinal rule (target cost can never be exceeded) is applied in case A, but mainly in the very early stages of the design process. If the target cost is not expected to be achieved within the time limit of the NPD process, a project is cancelled – a decision taken by consensus in the product development meeting. However, once the ESK project contract has been signed, all efforts will be made to make sure that the internal target cost is attained at the final design review meeting. There can be certain last-minute technical problems why the internal target cost cannot be achieved. However, the project leader will endeavour to formulate additional cost reduction ideas to implement during the manufacturing stage, in order to realize the internal target cost later on.

Other factors play a role in the important decision to cancel a project after the ESK contract agreement, such as the strategic importance of the product, the necessity to replace its obsolete predecessor or the resources invested in the project so far:

Different projects will be considered together to see whether our global profit target at company level will be attained. You should keep in mind that there is more than cost alone. There is the pressure from the market and from our Sales Department to get the new product as soon as possible. It hardly ever happens that we cancel a new product at the final design stage. At that time, we have invested too much design resources. Furthermore, extending the product launch is very unusual. If we are extending the launch with two months, I can tell you that the loss of contribution is huge (Supervisor, Manufacturing Planning).

Analysis of the characteristics at case A.

- The target sales price is set during manufacturing planning, in a market-oriented way. An extensive market research study is performed to assess the price and functionality preferences of distributors and customers.
- Top management sets the target profit margin as well as the overhead percentage that is added to direct costs. During the design reviews, profit margin and overhead percentages are not discussed. All other issues are decided by consensus.
- The target cost is set after the concept has been clearly defined, still in the early stages of NPD. The top-down method is used; estimated selling price minus profit margin forms the target cost. However, a more challenging target cost is used, based on internal benchmarking.
- The target cost is subdivided into target costs for subassemblies, components and parts to be produced internally or sourced externally.
- Detailed cost information is provided during NPD to support cost reduction.
- Case A attaches a lot of importance to the design review meetings where the different departments make decisions by consensus. These meetings require considerable time, but the interviewees found it essential to get formal approval

from all departments before the project could proceed to the next stage in the design process. Robinson (1999, p. 42) states that target costing has no chance of success if the departments involved in making and selling a product are not jointly involved in its development. Within case A, it is clear that all the departments are jointly involved.

- The cost level of the future product is compared with its target cost at different points during NPD. In case A, agreed target costs are considered final. By formal agreement on each step in the NPD stage, each department commits to the project.
- A general rule is established that “the target cost can never be exceeded” although this applies only to the first part of the development process. Once considerable investments have been made (e.g. moulds, design time) the team can decide to proceed with the product launch, even if the target cost will be exceeded. Then, the NPD team needs to develop a cost reduction action plan, to reach the target cost later during manufacturing.

Case B

Description of case B. Case B is a leading international producer of agricultural machinery. It provides a full range of financial and after-sales services, marked by continuous innovation and constant attention to farmers' present and future needs:

CASE B is a world leader in the fields of agricultural and construction equipment. Supported by 11,400 dealers in 160 countries, it brings together the knowledge and heritage of its brands with the strength and resources of its worldwide commercial, industrial, product support and finance organizations (Company Brochure).

The researchers established contact with the plant that specializes in the design and production of combine harvesters and forage cutters, employing about 2,000 people with annual sales around €600 million. In this sector, case B is one of the major players in the market; but the market is decreasing and competition is fierce in terms of sales prices. Customer satisfaction and intensive cost management during design (target costing) are considered key factors for survival in this competitive market:

We started with target costing some ten years ago, because we were convinced that it is much easier to reduce the cost during NPD, than afterwards during manufacturing. I am convinced that the major part of our product cost (I guess 70 to 80 percent) are committed during NPD ... Two years ago, we started with a *cost reduction team* - an independent small department of five to six experienced engineers, dedicated to a specific product. The cost reduction team mainly starts at product launch and keeps track of the cost of existing products till they realize the end of their life cycle, about six to eight years after product launch. They provide feedback to the design cost analysis people and make suggestions for cost reduction. They also monitor whether the cost reduction suggestions were indeed realized in upgrades and next generations of the products (Head of Engineering).

Target costing process at case B. The NPD process starts for case B with “customer clinics”. Existing and potential customers from different markets are invited to discuss the functionalities of current products, to comment on competitors' offerings and to provide feedback on early prototypes. Case B uses a formal evaluation program (matrix) to determine what characteristics of the product are important to the different markets and to what degree the current products succeed in offering these

functionalities. In addition, the price sensitivity of customers is tested. The results of the customer clinics are then analysed in the different cells of the Engineering Department. Each group of engineers focuses on one large subassembly. For instance, the engineering cell responsible for the engine will study ways of increasing the performance of the engine, as required by the customers. Also, the warranties for older versions of the product are considered. For instance, if the company had made many warranty payments for windscreens, engineers will attempt to eliminate glass cracking. Then, the different cells within engineering analyse the suggested improvements for the future product and discuss it with the marketing department to make sure the suggested improvements satisfy the wishes of customers.

After discussions on the functionalities, volume and selling price, the project book is drawn up with input from all involved parties, such as engineering, marketing, finance, design, purchasing. The marketing department is involved in determining the sales price, based on information from the customer clinics, the price of existing products and competitors' offerings. The marketing department estimates different sales volumes linked to different prices. The process engineering department calculates the additional investments in plant equipment. The purchase department provides information on the parts to be outsourced. The design cost analysis department provides the as-if cost for each subassembly. Case B uses both the subtraction and addition methods to determine the target cost:

We determine the profit margin, based on the margin of current products and the profit plan. The selling price is determined by the market. So the top-down target cost (actually the allowable cost) can be determined as the difference between the selling price and the profit margin. On the other hand, our engineers will also provide their best estimate of the as-if cost, based on the large functionalities of the new product. Both the top down target cost (from the market) and the bottom up target cost (from engineering) are reconciled and the final target cost is decided. If the as-if cost is much larger than the allowable cost, engineering need to find additional cost reductions or functionalities might be dropped after consultation with the Marketing Department. Once the project book (the so-called "Initiativa") is certified by top management, the target cost and the product definition is frozen. This is the official start of the NPD. Normally, we are then three to four years before product launch (Head of Engineering).

Then, the new product is designed and developed in detail. The design cost analysis department takes the lead here. Only engineers with a lot of experience belong to this department. The target cost is further split-up into target costs for the large functionalities, but later on during NPD, when the bill-of-material is more or less certain, target costs are assigned to components as well. Each subassembly is divided into different parts, and the cost of similar existing parts is taken as a starting point.

In case B, the focus is on direct cost reduction during NPD. The target cost and the drifting cost are calculated as the sum of the parts cost (bill-of-material), direct labour cost, machine run cost, manufacturing overhead applied to direct labour (fixed percentage), manufacturing overhead applied on machine time (fixed overhead). Different databases are used to provide input for cost calculation during NPD:

Till one year before product launch, the *engineering* database is used to calculate the drifting cost. These cost estimates are based on the cost of existing products, but considering all possible cost reduction ideas. From one year before product launch, the *manufacturing* database is used for calculating the drifting cost. It contains the "real costs" as entered by the

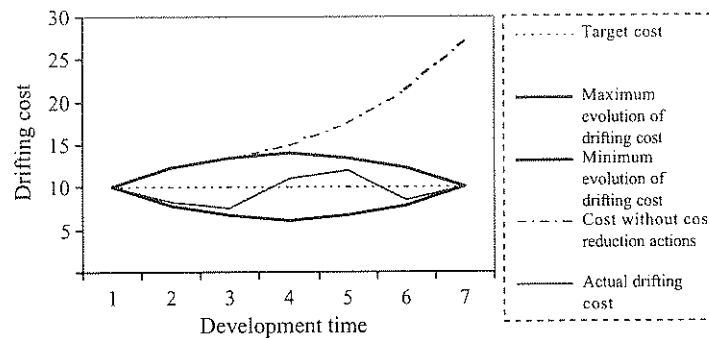


Figure 3.
Evolution of the drifting
cost at case B

As described above, different departments are involved in the target costing process: marketing, product engineering, design cost analysis, process engineering, purchasing, accounting, top management and the cost reduction team.

Suppliers are not actively involved in the target costing process. Although the project book also includes prices for the main parts that are purchased outside, these estimated costs are not communicated to the suppliers as a target cost. During design, it forms a kind of target cost for the purchase department, to guide how far the purchase department needs to go in price negotiations. Case B's management believes that if the target cost for the component is set too low, nobody will take the order. If the target cost for the component is set too high, it creates a missed opportunity for the company.

The cardinal rule is applied in case B, but not as strictly as described in the literature. At case B, there are three milestones during NPD – agreement on the project book, one year before product launch, and at product launch. As in case A, the cardinal rule is applied early in the NPD process. Top management will not certify a project book when the target cost is expected to be too hard to reach:

It has never happened that a new product is not launched because of exceeding the target cost at product launch. It has been a few times close to that, but till now it has never happened ... It has happened that we did the product launch, but top management allocated a huge cost reduction team to that product, to realize a cost reduction objective within one year Or, it has happened that we needed to postpone product launch with a few months because of cost reasons (Managing Director, Shared Service Centre Accounting and Reporting).

Finally, the interviewees were happy to announce that the last few product launches have gone very smoothly, some with a drifting cost lower than the target cost:

Fifteen years ago we were "organization-cost-focused". Nowadays, we are "product-cost-focused". With organization-cost-focused, I mean that all departments were evaluated on attainment of their departmental budget. Flexible budgets were prepared and all departments were eager to present their own "good" performance ... Now, we take a "cost picture" of our new products every month and the discussion that follows focuses on analysing the cost reductions and cost increases (Supervisor, Product Cost).

Analysis of the characteristics at case B

- The target selling price is set during product planning, in a market-oriented way.
- At case B, the profit margin is determined beforehand, based on the profit plan.

- The target cost is set using both the subtraction and addition method. The head of the engineering department considers it extremely important that there is “certainty” about the attainability of the target cost from early in the design process.
- The target cost is subdivided into target costs for subassemblies. There are cost estimations for individual parts later in the process, but these are not communicated to suppliers.
- Cross-functional co-operation between different departments aims for the target cost, with high involvement of top management and a dedicated cost reduction team, looking for cost reductions on existing and new products.
- Detailed cost information is provided during NPD to support cost reduction. Based on the status of the development, a good estimate or a real cost is used to calculate the drifting cost.
- The drifting cost of the future product is compared with its target cost on a monthly basis, during the last year of NPD.
- A general rule is established that “the target cost can never be exceeded” although this rule is only applied early in the NPD process. At product launch, unexpected cost increases might convince top management to postpone the project, or top management can decide to proceed with product launch, while dedicating a cost reduction team to reach the target cost at a future deadline.

Case C

Description of case C. Case C designs and manufactures products for every major vehicle producer in the world. Case C is focused on being an essential partner to automotive, commercial, and off-highway vehicle customers, which collectively produce more than 60 million vehicles every year:

At CASE C, our engineers have a commitment to the discovery of better ways to meet the needs of our customers. Our capabilities have advanced well beyond traditional product design, testing, and prototyping. We employ state-of-the-art techniques such as computer-aided design (CAD), finite element analysis (FEA), failure modes and effects analysis (FMEA), and rapid prototyping (Company Brochure).

The plant we visited specializes in the design, development and production of transmission systems and employs 700 people. Worldwide, the group has about 3,500 employees. Case C is considered as a privileged supplier to many large automotive customers, but it faces fierce price competition. Case C started target costing ten years ago because its major customers were requiring lower prices for a similar kind of product:

As a company in Europe, we surely feel the fierce price competition from low wage countries. But still, I think we can survive with our plant in Belgium, because we have our knowledge ... We have Design, Industrial Development and Manufacturing on one site in Belgium, which makes it possible to create cost-efficient new products. In fact, knowledge to create a cost-efficient product is the only weapon we have in this fierce competition (Head of Industrial Development).

Three years ago, the focus on cost increased by the creation of a “Product Cost Management Department”. This department is part of industrial development and is considered the “cost watchdog”. A first duty is to assist engineers to select a concept

for the new product that meets the requirements of the customer, but that is also feasible in terms of costs. The second task is to focus engineers on cost reduction during detailed development and testing. The third objective is to search for cost reductions of existing products during the manufacturing stage:

The role of the Product Cost Management Department is difficult to play . . . You need to be respected, you need to have the technical expertise and you need to know the organization . . . With this new department, we really interfere early in the NPD process to keep designers and development engineers focused on cost in every decision they take. Because of the technical and cost background of these Cost Management Engineers, we now are far better able to balance technology and cost (Head of Industrial Development).

Target costing process at case C. For smaller customers, the NPD process starts with a design from the customer, then engineers focus on the detailed development. However, for big customers, case C is more actively involved in the conceptual stage. The design department defines a set of "concepts" and, based on the layout, customer's requirements and a rough cost estimate, one concept is selected for further development. This decision is taken by designers and development engineers together.

Once the concept selection has been made, the cost estimate is called the "concept cost". This concept cost (basically an as-if cost) is based on the cost of existing products, while considering cost reduction ideas for the large subassemblies. The headquarters of case C require a return on sales of 6 per cent so based on the "concept cost" the proposed selling price can be determined. However, case C has no power over its customers to set prices. Case C is one of many subcontractors in the competitive automotive industry:

It is a challenge to estimate the concept cost as accurately as possible in order to set the proposed selling price. All possible cost reduction ideas need to be considered (Head of Industrial Development).

If the quoted selling price is higher than the customer wants to pay, there is a problem. Different solutions can be used. Either engineers try other cost concepts, or consider outsourcing for some high volume parts to a low-wage country. If neither solution is possible, then case C describes to the customer all the details of its estimated "concept cost". In the past, the following solution often resulted: case C lowered its profit margin and the customer agreed to a slight increase in selling price. This concession is more easily made for large orders from existing customers, because of the economies of scale and because current customers also have other products on order at case C. For new customers, case C has been known to abandon projects at this concept stage because the profit margin was lower than the required 6 per cent on sales.

If the quoted price is acceptable to the customer, the project can be launched for detailed design and development and the concept cost becomes the target cost. During this detailed design and development, the drifting cost is calculated by the "product cost management" department. In the beginning, the drifting cost is based on estimates, but once the product structure is developed, the estimates are replaced by quoted prices from suppliers or "real" labour/machine times. Manufacturing overhead is added as a fixed percentage of direct labour and administration overhead (to recover the cost of purchase, warehouse and inspection costs) is added as a fixed percentage of the parts value. For new parts to be produced internally, the tooling cost and the investment costs (machines) will be included in the drifting cost. If the customer requests additional features during

detailed design and development, case C tries to recover these R&D costs from the customer and includes them in both the drifting cost and target cost.

Remarkably, the target cost can be revised at case C. It can be increased when engineers notice that they have made a wrong estimation during the concept stage, or revised because of additional requirements from the customer, as shown in Figure 4:

If engineers from both sides (the customer and our company) add new features to the product, the drifting cost explodes. This will always happen with engineers. They find very nice technical solutions, but forget that the whole thing has a cost. Of course, engineers want to build their dreams – I am also an engineer, but we have to run a business! It is my duty that both sides balance technology against cost. So, if the customer asks for additional features, we will try to recover these R&D costs. Then co-operation with the sales department is needed (Head of Industrial Development).

To estimate the drifting cost, case C uses a standard cost as well as a detailed ABC system. The ABC system can estimate the overhead cost of future products more accurately, but this cost system is no longer used during NPD, because it is considered too detailed and too depending on underlying assumptions:

If you change the assumptions that you used during NPD in the manufacturing stage, then your actual cost will be totally different from the one you estimated. For instance, if you are producing large volumes, then you need to make assumptions on setups. If you change batch size during manufacturing, your actual ABC cost will dramatically differ from the drifting cost. So, we care less about the detailed ABC system during NPD. We consider the standard cost system and try to focus on cost reduction on the direct costs (Cost Accountant).

The comparison between the drifting cost and the target cost is not formalized at case C. For big projects, top management is involved and takes the go/not go decision after each

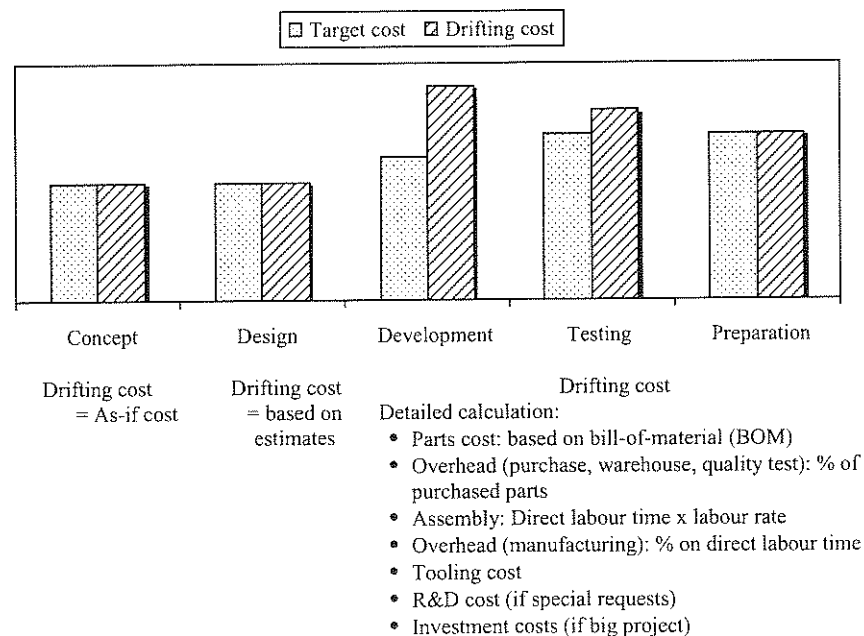


Figure 4.
Content of the drifting cost
and revised target cost at
case C

of the four stages (concept, detailed design and development, testing, manufacturing preparation) but, in general, it is the task of the product cost management department to safeguard the evolution of the drifting cost. Again, the experience of the cost management engineers is important in evaluating the estimates received from development, manufacturing or the purchase department. As in case B, during the detailed design and development the estimates are replaced by "agreed" actual costs.

Consequently, the "target" is not considered as a commitment. Only a few products have realized the required profit margin of 6 per cent, which erodes the motivation that should come out of the target costing process. The engineering department knows that either the selling price or the profit margin will be adjusted. Other plants also have difficulties in achieving the required 6 per cent. In practice, the target cost is never achieved at product launch, but the product cost management engineers might work on achieving that target cost during manufacturing. However, there is a second reason why case C is performing a kaizen costing approach. They are producing in a cell lay-out and have experienced the cost of existing products creeping up during manufacture:

Remember that one of the reasons we started with the product cost management department ("the cost watchdogs") was to reduce the cost of existing products, which is creeping up step by step ... We have a huge number of orders accepted by our customers and we need to produce some products very fast ... If we face a technical problem during manufacturing, engineers are trained to find a quick solution, which is appreciated by our customers. But, most of the time this technical solution is not the best in terms of cost-efficiency. Also, the suppliers ... know we need the parts quickly, so they raise the price slightly. To stop large increases in the cost of existing products, we introduced the "margin management" exercise. Our Cost Management Engineers scrutinize the actual cost of existing products, and make suggestions to eliminate all "waste" out of the cost (Head of Industrial Development).

In sum, different departments are involved in the target costing process. Top management makes the final decision, and co-operation between design and industrial development is stressed throughout NPD. In particular, the product cost management department is guiding design and development engineers to cost reduction, and the purchase department has a clear view of the costs of outsourced parts. Suppliers are not actively involved during NPD.

Analysis of the characteristics at case C

- The target sales price is mainly determined by case C's customers, although customers still expect quotes.
- The target profit margin is set at a 6 per cent return on the selling price and there is no differentiated profit planning for products.
- Case C uses the addition method to calculate the target cost and revises this target costing later during NPD, when the original technical assumptions change.
- This target cost is not formally decomposed into targets for subassemblies, although a target cost is set for the two main subassemblies.
- Cross-functional co-operation occurs, although the product cost management Department is taking the lead in cost reduction.
- Cost information to estimate the drifting cost is mainly based on cost information of existing products and insights from experienced engineers. No formal databases are used, in contrast to the previous two cases.

- The drifting cost is regularly compared with the target cost, but this is not formalized in official reports or meetings.
- Finally, although there is a clear profit objective of 6 per cent, there is no firm commitment to attaining it. By adjusting the profit margin or increasing the sales price, case C tries to bring the target cost in line with the as-if cost. This contrasts with the "cardinal rule".

Conclusion

This paper aims to provide an insight into the characteristics of target costing. Target costing can be defined as the process of determining the target cost for future products early in the NPD process and of supporting the attainment of this target cost during the NPD process. The target cost represents the maximum cost for the future product, given the required functionalities and the time-to-market objective. It is set early in the NPD process to motivate design engineers to achieve cost reductions that will secure product profitability for newly launched products.

In this paper, we identified eight characteristics of target costing to emerge from the English-language literature over the past 15 years. Second, we examined the degree to which these characteristics were found in practice at three European companies that had adopted target costing. A summary of the case results is shown in Table II.

So, are the identified characteristics adopted in the investigated companies? In each of the three investigated companies, the first characteristic is obvious since the target sales price is set early in the NPD process in a market-oriented way. Simply working

Characteristic	A	B	C	Comments
1. The target sales price is set during product planning, in a market-oriented way	✓	✓	✓	
2. The target profit margin is determined during product planning, based on the strategic profit plan	✓	✓	✓	Strategic profit plan is more fully developed in cases A and B. For case C it is a general rule of 6 per cent on sales.
3. The target cost is set before the NPD process really starts. The target cost is determined based on the subtraction method or the addition method.	✓	✓	✓	Case A: subtraction and addition method (based on internal benchmark). Case B: subtraction and addition method (based on feasibility). Case C: addition method.
4. The target cost is subdivided into target costs for components, functions, cost items, designers or suppliers	✓	✓	✓	Not for designers or suppliers.
5. Attainment of the target cost requires a cross-functional team.	✓	✓	✓	Cases B and C: additional "cost reduction team". Embedded "cost reduction culture" in cases A and B.
6. Detailed cost information is provided during NPD to support cost reduction	✓	✓		Separate databases in cases A and B, run by design or development (not accounting).
7. The cost level of the future product is compared with its target cost at different points during NPD	✓	✓		Formally organized in cases A and B.
8. A general rule is established that "the target cost <i>can</i> never be exceeded"	✓	✓		Adjustment of this characteristic to "should" for cases A and B at product launch. Adoption of this characteristic in the sense of "can" at product concept stage in cases A and B

Table II.
Characteristics of target costing: adoption in the field

with a cost-plus approach is infeasible in the current competitive markets. Second, the target profit margin is determined during product planning, based on the strategic profit plan. In cases A and B, top management decides on the profit margin for each product. In case C, headquarters requests a return on sales of 6 per cent, but this profit margin is squeezed during NPD. Third, the target cost is set before the NPD process really starts, using either the subtraction or addition method. In the subtraction method, the level of the target cost is set at the difference between the target sales price and the target profit margin. The addition method takes real attainability into consideration by summing the estimated costs of the different parts, as-if including all existing cost reduction ideas. Cases A and B use both the subtraction and addition method. Case B utilises the addition method, because they seek certainty about the attainability of the target cost, but cross checks this with what the customer is willing to pay. Case A also sets an internal challenging target cost, which is usually lower than the target cost derived from the market. It represents a benchmark based on the lowest cost producer within the group. Case C starts with the addition method, but makes some adjustments downwards to achieve the imposed selling price of its customer. Four, the overall target cost is then split into target costs for subassemblies, functions or parts. Although the literature describes objective methods for allocating the general target cost to subassemblies, none of the companies investigated uses such a method. They mainly focus on existing products to make the allocations. All three companies keep the target costs for parts mainly internal, to cross check tenders from suppliers. Five, the target costing process requires the co-operation of a multidisciplinary team. In all three companies, cross-functional cooperation is stressed among the purchasing, marketing, sales, design, development and manufacturing departments. It appears that top management was more involved in case B, whereas in case A, the process is mainly managed by design and manufacturing planning. None of the three investigated companies allow suppliers to be part of the design team, which is contrary to the Japanese case descriptions. Six, detailed cost information is provided during NPD to support cost reduction. In case C, the cost system is very detailed and also included indirect cost estimates in an ABC system. However, this information is mainly to convince customers that parts could not be produced more cheaply. For NPDs, they mainly use a traditional cost system. All three companies are mainly addressing reduction of the direct costs during NPD. Cases A and B use different databases for estimating the drifting cost during NPD. As the design becomes more detailed, the original estimates are replaced by "real" cost figures based on quotes from suppliers, machine time estimates, die costs, etc. So, depending on the stage of NPD, the cost roll-up is made based on different databases. Seven, the cost level of the future product is compared with its target cost at different points during NPD. Designers in case A spend a lot of time on the design review meetings and formalize each step by obtaining signatures from the different departments. This implies a real commitment of the whole team towards achieving the target cost and the development time objective. Case B monitors the estimated cost (drifting cost) during every step of the process and every month during the last year of NPD. Contrary to the examples in the current literature, companies A and B informed us that the drifting cost can go upwards during NPD. Unexpected cost increases due to functionality problems around the prototyping phase frequently require additional cost reductions in order to realize the target cost. In contrast, case C increases its target cost during NPD, when unforeseen problems arise

or one of the design parameters changes. Eight, during the whole target costing process, the general rule is established that the target cost can never be exceeded at product launch. This characteristic is adopted mainly in the early stages of NPD. Cases A and B follow the rule strictly during the initial stages of NPD, but admit that competitive pressure and time limitations during the last stages of NPD have led to new product launches where the drifting cost exceeded the target cost. It seems that for both companies, reaching the market on time with a new version at a reasonable cost are more important than searching for the last euro of cost reduction. However, we need to stress that both companies prepare an action plan at product launch to bring the cost down during the first months (year) of mass production. Case C has major difficulties with this general rule. Because of time pressure, the target profit margins are adjusted downwards. In sum, we conclude that the companies were applying the cardinal rule more as "the target cost *should* not be exceeded".

This paper reports a preliminary study of the characteristics of target costing and their adoption in practice. The opportunities for further research in this area are numerous. By specifying the underlying characteristics of target costing, we hope to have started theorizing the concept of target costing. From previous research (Dekker and Smidt, 2003) as well as from this study, it is clear that future research on the adoption of target costing cannot be disconnected from its characteristics. It would also be interesting to replicate this study in other countries and other settings. Kato (1993) explains that the meaning of a "target" is more than just an objective, as understood by many Western firms. Clearly in cases A and B there was commitment to attaining the target cost, whereas for case C it was considered more as an objective in the "Western sense". Case A has Japanese origin, case B is part of a large Italian group and case C has American roots. Does culture matter here? Further, as the results revealed, the degree of openness to suppliers and their involvement in the target costing process differs considerably from what we know from theory and hence merits further research. Replication in other industries would be interesting as well. We deliberately contacted companies within the sectors of transportation (case B), electronics (case A) and non-ferrous/metal (case C), where target costing is thought to have been adopted to a high degree (Tani *et al.*, 1994; Dekker and Smidt, 2003). All three companies focused on cost reduction of direct costs, since they counted for two thirds of total cost. None of the companies was interested in reducing indirect costs, as in an activity-based management approach. Surprisingly, there was no discussion on indirect costs during NPD. Case C even returned to a simple volume-based cost system, because it was too difficult to update the ABC-cost during NPD, leading to inaccurate cost figures. Also the role of accounting in the investigated companies was rather limited; most of the cost databases were constructed and maintained by engineers from design, development or manufacturing.

Finally, the results show that in cases A and B the target costing principle was well-accepted and embedded in the company culture. Case C was having more problems with operating the target costing process. Hence, it would be interesting to investigate the reasons why target cost was less formally developed in case C. We might formulate some hypotheses, based on our case material, although more research is needed:

- Company culture differs – case C is still struggling with imposing the cost-reduction philosophy on what has been considered an engineering-driven company.

- Case C can be considered a captive supplier, with limited opportunities for downward cost pressure. In contrast, cases A and B are selling finished products to final consumers (through large distributors). Because of their market leadership, they might impose cost pressure on its suppliers. Although case C is considered a key supplier to some of the big customers, sales are order-driven. Hence, sales volume fluctuates substantially.
- Case C is facing fewer degrees of freedom in developing new products than cases A and B. Case C is developing subassemblies, while the first two companies are developing a "whole" product, made of different subassemblies. The design parameters to decide on are less numerous for case C than for cases A and B, even enforced by customers providing clearly-defined specifications. This might explain why case C adopts its target cost when the underlying assumptions are changing.
- Performance measurement is differently organized. In case C performance is still evaluated for the different departments, while for cases A and B performance is evaluated on a product basis. At cases A and B, the drifting cost is measured frequently and departmental budgets are less important than attainment of the target cost.
- The "cost-watchdog department" is less independent at case C. Although both cases B and C have a separate group of engineers responsible for monitoring and reducing costs, case B's cost reduction team is an independent unit, while in case C it is part of industrial development and considered less independent.
- The NPD process is less standardized. In cases A and B the target costing process was more standardized and formalized, while for case C there was less structure. This might be explained by the fact that sales (and hence new products) are mainly "order-driven".

Since, we used case study research methods, the general limitation of subjectivity applies to the study. Investigating the real-life environment is the main strength in terms of external validity, but it is also a weakness in terms of generalization of the results. The results definitely cannot be generalized to other settings. Despite our attempt to cross-check the interview data with different respondents in the company, to analyze the data separately by two researchers and to double-checked the findings in a second interview round, we cannot guarantee that no bias has occurred because the researchers were involved in the data gathering. Furthermore, there might be a self-selection bias in the results as well, since these companies volunteered to participate. Also, we selected rather large companies, and one can assume that large companies have the resources to organize NPD in a structured and advanced way. Replication in smaller firms would be interesting. Finally, all three cases are companies involved in assembly. This characteristic makes them top candidates for applying target costing (Tani *et al.*, 1994; Cooper and Slagmulder, 1997). Future research is needed on the adoption of characteristics in other type of industries.

References

- Ansari, S.L.J. and Bell, J. (1997), *Target Costing, the Next Frontier in Strategic Cost Management*, The Cam-I Target Cost Core Group, Chicago, IL.

- Kaplan, R.S. (1986), "The role for empirical research in management accounting", *Accounting Horizons and Society*, Vol. 11 Nos 4/5, pp. 429-52.
- Kato, Y. (1993), "Target costing support systems: lessons from leading Japanese companies", *Management Accounting Research*, Vol. 4 No. 4, pp. 33-47.
- Kato, Y., Böer, G. and Chow, C.W. (1995), "Target costing: an integrative management process", *Journal of Cost Management*, Vol. 9 No. 1, pp. 39-51.
- Makido, T. (1989), "Recent trends in Japan's cost management practices", in Monden, Y. and Sakurai, M. (Eds), *Japanese Management Accounting*, Productivity Press, Cambridge, MA, pp. 3-15.
- Michaels, J.V. and Wood, W.P. (1989), *Design to Cost*, Wiley, New York, NY.
- Monden, Y. and Hamada, K. (1991), "Target costing and kaizen costing in Japanese automobile companies", *Journal of Management Accounting Research*, Fall, pp. 16-34.
- Morgan, M. (1993), "A case study in target costing: accounting for strategy", *Management Accounting (CIMA)*, May, pp. 20-3.
- Robinson, R. (1999), *A Practical Guide to Target Costing Processes and Techniques*, CIMA: Kogan Page, London.
- Roethlisberger, F.J. (1977), *The Elusive Phenomena*, Cambridge, Harvard University Press, Boston, MA.
- Sakurai, M. (1989), "Target costing and how to use it", *Journal of Cost Management*, Vol. 3 No. 2, pp. 39-50.
- Tanaka, M. (1989), "Cost planning and control systems in the design phase of a new product", in Monden, Y. and Sakurai, M. (Eds), *Japanese Management Accounting*, Productivity Press, Cambridge, MA, pp. 49-71.
- Tanaka, T. (1993), "Target costing at Toyota", *Journal of Cost Management*, Vol. 7 No. 1, pp. 4-11.
- Tani, T., Okano, H., Shimizu, N., Iwabuchi, Y., Fukada, J. and Cooray, S. (1994), "Target cost management in Japanese companies: current state of the art", *Management Accounting Research*, Vol. 5 No. 1, pp. 67-81.
- Wijewardena, H. and De Zoysa, A. (1999), "A comparative analysis of management accounting practices in Australia and Japan: an empirical investigation", *The International Journal of Accounting*, Vol. 3 No. 1, pp. 49-70.
- Yoshikawa, T., Innes, J. and Mitchell, F. (1990), "Cost tables: a foundation of Japanese cost management", *Journal of Cost Management*, Vol. 4 No. 3, pp. 30-6.
- Yoshikawa, T., Innes, J. and Mitchell, F. (1993), *Contemporary Cost Management*, Chapman and Hall, London.

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- Birnberg, J., Shields, D. and Young, M. (1990), "The case for multiple methods in empirical management accounting research (with an illustration from budget setting)", *Journal of Management Accounting Research*, Vol. 2, pp. 33-66.
- Böer, G. and Ettlie, J. (1999), "Target costing can boost your bottom line", *Strategic Finance*, Vol. 81 No. 1, pp. 49-53.
- Brausch, J. (1994), "Target costing for profit enhancement", *Management Accounting (NAA)*, November, pp. 45-9.
- Carr, C. and Ng, J. (1995), "Total cost control: Nissan and its UK supplier partnerships", *Management Accounting Research*, Vol. 6 No. 4, pp. 346-65.
- Chenhall, R. and Langfield-Smith, K. (1998), "Adoption and benefits of management accounting practices: an Australian study", *Management Accounting Research*, Vol. 9 No. 1, pp. 1-19.
- Cooper, R. (1994a), "Olympus Optical Company, Ltd. (A): cost management for short life cycle products", Harvard Business School Case Number 9-195-072, pp. 1-14, Cooper, R., "Cost management in a confrontation strategy: lessons from Japan", Casebook, Harvard Business School Publishing, Boston, MA, 71-84.
- Cooper, R. (1994b), "Nissan Motor Company Ltd.: target costing system", Harvard business School Case Number 9-195-040, pp. 1-19, Cooper, R., "Cost management in a confrontation strategy: lessons from Japan", Casebook, Harvard Business School Publishing, Boston, MA, pp. 39-58.
- Cooper, R. (1994c), "Komatsu, Ltd. (A): Target costing system", Harvard Business School Case Number 9-194-037, pp. 1-10, Cooper, R., "Cost management in a confrontation strategy: lessons from Japan", Casebook, Harvard Business School Publishing, Boston, MA, pp. 59-69.
- Cooper, R. (1994d), "Topcon corporation: production control system", Harvard Business School Case Number 9-195-082, pp. 1-11, Cooper, R., "Cost management in a confrontation strategy: lessons from Japan", Casebook, Harvard Business School Publishing, Boston, MA, pp. 149-157.
- Cooper, R. (1995), *When Lean Enterprises Collide, Competing Through Confrontation*, Harvard Business School Press, Boston, MA.
- Cooper, R. and Chew, B. (1996), "Control tomorrow's cost through today's designs", *Harvard Business Review*, January-February, pp. 88-97.
- Cooper, R. and Slagmulder, R. (1997), *Target Costing and Value Engineering*, Productivity Press, Portland.
- Cooper, R. and Yoshikawa, T. (1994), "Isuzu Motors, Ltd.: cost creation program", Harvard Business School Case Number 9-195-054, pp. 1-11, Cooper, "Cost management in a confrontation strategy: lessons from Japan", Casebook, Harvard Business School Publishing, Boston, MA, pp. 85-99.
- Dekker, H. and Smidt, P. (2003), "A survey on the adoption and use in Dutch firms of target costing", *International Journal of Production Economics*, Vol. 84 No. 3, pp. 293-305.
- Ellram, L.M. (2000), "Purchasing and supply management's participation in the target costing process", *Journal of Supply Chain Management*, Vol. 36, pp. 39-52.
- Fisher, J. (1995), "Implementing target costing", *Journal of Cost Management*, Vol. 9 No. 2, pp. 50-9.
- Guilding, C., Cravens, K.S. and Tayles, M. (2000), "An international comparison of strategic management accounting practices", *Management Accounting Research*, Vol. 11, pp. 113-35.
- Joshi, P.L. (2001), "The international diffusion of new management accounting practices: the case of India", *Journal of International Accounting, Auditing and Taxation*, Vol. 10, pp. 85-109.

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